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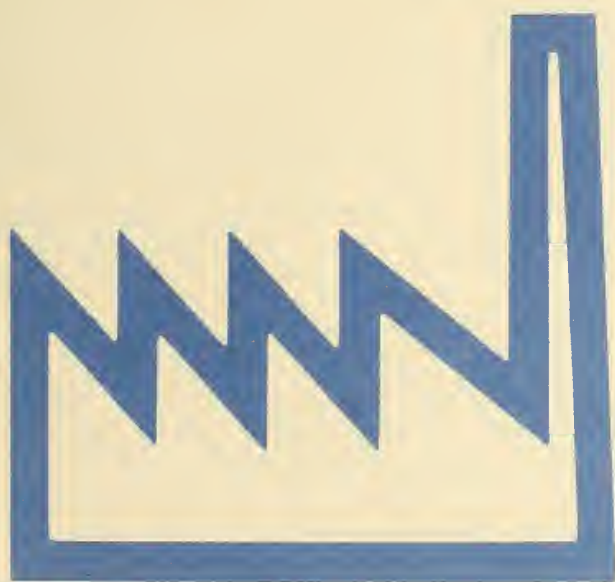
1982

Census of Manufactures

MC82-S-3

SUBJECT SERIES

Textile Machinery In Place



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The publications
from the 1982 Economic and
Agriculture Censuses are dedicated
to the memory of Shirley Kallek,
Associate Director for Economic Fields.
During her career at the Bureau of the
Census (1955 to 1983), she continually
directed efforts to improve
the timeliness and accuracy of
economic statistics.

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Issued March 1985



U.S. Department of Commerce

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Textile Machinery in Place

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EXPLANATORY TEXT

GENERAL

This report supplements the 1982 Census of Manufactures data shown for SIC Major Group 22, Textile Mill Products, in the industry reports series. The data included in this report were collected in an independent survey through a mail canvass on Census Form MC-22Z, Textile Machinery in Place as of June 30, 1983, as part of the 1982 Census of Manufactures.

SCOPE OF SURVEY

The manufacturing establishments reporting in this survey are defined as a single physical location where manufacturing operations are performed (e.g., a factory, mill, or plant). They were selected from the 1982 Census of Manufactures mailing panel for specific textile industries as defined and structured in the 1972 edition of the Standard Industrial Classification (SIC Manual¹, published by the Office of Management and Budget, Executive Office of the President. The specific industries included cover the major textile operations, as follows: yarn spinning (SIC's 2281 and 2283); yarn texturing and throwing (SIC 2282); weaving (SIC's 2211, 2221, 2231, and 2241); knitting (SIC's 2251, 2252, 2253, 2254, 2257, 2258, and 2259); yarn and fabric finishing (SIC's 2261, 2262, and 2269); tire cord and tire cord fabric (SIC 2296); nonwoven fabrics (SIC 2297); and carpet and rugs (SIC's 2271, 2272, and 2279). Since a portion of textured yarn is also produced by chemical companies manufacturing filament yarn (SIC's 2823 and 2824), respondents were also selected from these operations. However, the machinery in place at coated fabric plants (SIC 2295) was excluded from this survey.

METHOD OF OPERATION

The textile industries are characterized by several major types of business activities: manufacturers, contractors, jobbers, converters, wholesalers, and piece-goods dealers.

The "manufacturer" purchases materials, employs production workers in his own plant to produce the product, and sells the product. In effect, the establishment performs all of the usual manufacturing functions.

The "contractor" employs production workers in his own establishment to process materials owned by other companies (independent contractors) or supplied by other establishments of the same company (multiplant company contractor), makes products to specification, and is not involved in the sale of the finished product.

The "jobber", "converter", "wholesaler", and "piece-goods dealer" primarily perform only the entrepreneurial functions of

the textile business, such as buying raw materials, designing and preparing samples, arranging for the manufacture of products from owned materials with contractor, and marketing the finished product.

The reporting establishments were asked to indicate their type of business (manufacturer, contractor, or jobber) and the kinds of operations (spinning, weaving, etc.) performed at each manufacturing location. Since there is a large degree of integrated or vertical operations within the establishments in the textile industries, each respondent received a complete copy of the report form, including all machinery descriptions collected in this report. This gave the respondent the opportunity to report the machinery in place of all operations performed at the plant location. The information concerning the type of business and kind of operation of the respondent was then cross-checked against the type of machinery reported by that respondent to ensure a complete and full report from each reporting unit. Basically, the majority of the machinery-in-place data shown in this report are located at manufacturing and contracting establishments. In addition, jobbers within the knitting industries were mailed report forms since they are considered within the scope of the census of manufactures. All other jobbers, wholesalers, converters, and piece-goods dealers were excluded from the mailing panel of this survey.

All respondents were asked to report the number of machines in place. For the purpose of this report, "machines in place" includes all machinery set up in operating positions even though the machinery may have been idle on June 30, 1983. In addition, the respondents were also asked to include sample machinery.

SURVEY COVERAGE

As a means of evaluating the coverage of this information, the employment figures for those establishments responding to our survey were tabulated by four-digit SIC industries in which the responding establishments are classified. The total employment figure of the reporting establishments of each four-digit SIC industry was then compared to the total employment figure of the respective four-digit SIC industry as shown in the 1982 Census of Manufactures preliminary industry reports. The figures presented in this report are simple aggregates of reported data from companies representing approximately 90 percent of total employment in the industries covered by this survey. The reporting percentage shown above may be slightly higher or lower in some cases as a result of plants that were out of scope of this survey or out of business and had sold or dismantled their equipment during 1983. These plants were counted as reporting establishments and their employment data were used in the computation of the reporting percentage. Also, an attempt was made to contact any known successors to the plants that went out of business during 1983. Conversely, several multiplant companies had new plants come into business during 1983.

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-005-00176-0.

Although the data for the successor establishments and new plants are included in the tables, they had no employees in 1982 and, therefore, could not be included in the reporting percentage.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose data for an individual establishment or company. However, the suppressed data are included in the higher level totals.

COMPARABLE CURRENT INDUSTRIAL REPORTS SERIES DATA

The data for selected types of machinery in place are also collected in the Current Industrial Reports (CIR) series of the Census Bureau. Reference is made in footnotes of each table where applicable to indicate the appropriate CIR series containing the comparable machinery-in-place data.

COMPARABLE PRIOR CENSUS OF MANUFACTURES DATA

Similar textile machinery-in-place data were shown in previous census of manufactures publications. Volume I, Subject Statistics, of the 1977, 1972, 1967, 1963, and 1958 Censuses of Manufactures included textile machinery-in-place data for selected years between 1954 and 1965. Where applicable, selected comparable figures from these publications are shown in the tables of this report.

SUMMARY OF FINDINGS

The data from the 1983 survey indicate a trend toward faster, more efficient machinery when compared to the 1978 data. For example, for cotton system spinning equipment, ring spindles are down from 17,182,204 in 1978 to 14,760,961 in 1982, while ringless spindles in place increased from 153,778 in 1978 to 316,196 in 1983. Similarly, shuttle-type and broad fabric weaving looms decreased from 261,904 in 1978 to 137,392 looms in 1983 while the faster shuttleless type looms, such as waterjet, airjet, etc., increased from 34,217 looms in 1978 to 53,798 looms in 1983. This shift to the faster, more efficient looms has allowed the companies to maintain the same level of production while the total number of looms decreased by 32 percent.

These data also reflect some of the changes in fashion which have taken place. For example, the data on knitting machines in place show that from 1978 to 1983, the number of double knit machines declined from 8,266 to 3,377. During the same

time, circular spring needle machines which produce among other things, the cloth for sweat shirts and some jogging suits increased from 2,423 to 4,796.

MICROFICHE AND COMPUTER TAPES

All the data in this report are available on microfiche. Selected data from the 1982 Census of Manufactures are also available on computer tape.

In addition to selected published data being on computer tape, one major data series, the location of manufacturing plants, will be available only on computer tape. This series presents the number of establishments by employment size class by four-digit SIC industry codes for States, counties, and places of 2,500 inhabitants or more. These data are available for both State and county by industry, and State and place by industry.

Microfiche reports are sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Computer tapes are sold by the Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1982 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, D.C. 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

- Represents zero.
- (D) Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
- (NA) Not available.
- (S) Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
- r Revised.
- SIC Standard Industrial Classification.

Table 1. Cotton System Machinery in Place for Preparation of Cotton and Manmade Fiber and Spun Yarn: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of machinery	June 30, 1983	June 30, 1978	Type of machinery	June 30, 1983	June 30, 1978
Automated bale feeding machines.....number..	643	378	Spinning spindles ¹ —Con.		
Automated blending machines.....do..	2 313	2 504	Ringless—Con.		
Pickers.....do..	688	1 814	Rotor—Con.		
Cards.....do..	19 864	30 371	Other.....producing positions..	112 214	
Chute fed.....do..	12 232	9 551	1 3/4 inches or less.....do..	18 818	
Direct fed.....do..	7 632	20 820	1 13/18 through 2 3/4 inches.....do..	86 062	85 651
Other.....do..			2 13/18 inches or more.....do..	9 538	
Drawing.....deliveries..	18 550	20 077	Other.....do..	86 156	8 786
Combers.....do..	4 898	5 083			
Roving machinery spindles.....number..	414 971	539 332	Automatic spinning doffers.....number..	8 510	(NA)
Spinning spindles ¹ :			Doubling and twisting spindles:		
Ring.....do..	14 760 961	17 182 204	Ring spindles.....do..	1 083 387	1 749 261
1 3/8 inches or less.....do..	723 229	1 236 714	4 inches or less.....do..	874 844	1 105 543
1 7/18 through 1 3/4 inches.....do..	1 813 502	2 291 870	More than 4 inches.....do..	408 543	643 718
1 13/18 through 2 1/4 inches.....do..	9 540 920	10 115 128	Two-for-one twisting spindles.....do..	132 836	(NA)
2 5/18 inches or more.....do..	2 883 310	3 538 492			
Ringless.....producing positions..	318 196	153 778	Throwing spindles ²do..	117 996	284 038
Rotor.....do..	250 040	145 012	Winders and spoolers.....producing positions..	590 358	817 639
Self cleaning.....do..	137 826		Automatic.....do..	292 454	322 085
1 3/4 inches or less.....do..	(D)	59 181	Manual.....do..	297 904	295 754
1 13/18 through 2 3/4 inches.....do..	88 754				
2 13/18 inches or more.....do..	(D)				

Note: Data are collected on a monthly basis and published in Current Industrial Report M22P, Consumption on the Cotton System and Stocks.

¹Excludes spindles operated on "American" and other new systems for spinning uncut top; see table 4.

²Includes up-twisters of either conventional or two-for-one type.

Table 2. Cotton System Spinning Spindles in Place by Geographic Area: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Geographic area	June 30, 1983		June 30, 1978	
	Ring spindles (number)	Ringless spindles (producing positions)	Ring spindles (number)	Ringless spindles (producing positions)
United States.....	14 760 961	316 196	17 182 204	153 778
Cotton growing States ¹	14 556 328	305 995	16 933 778	(D)
Alabama.....	1 453 910	31 188	1 778 375	26 632
Georgia.....	1 688 192	49 010	2 322 284	25 260
North Carolina.....	5 115 149	126 641	5 502 012	57 957
South Carolina.....	5 077 436	72 452	8 031 960	28 864
Tennessee.....	422 898	9 570	451 718	4 902
Texas.....	130 573	10 962	160 656	3 800
Virginia.....	602 896	(D)	595 204	2 400
Other States.....	65 474	(D)	93 591	(D)
New England ²	137 356		222 410	
Rest of United States.....	87 277	10 201	26 018	(D)

¹Includes Virginia, North Carolina, South Carolina, Georgia, Tennessee, Texas, Alabama, Missouri, Mississippi, Arkansas, Kentucky, Louisiana, Oklahoma, New Mexico, Arizona, California, and Florida.

²Includes Maine, New Hampshire, Vermont, Rhode Island, Connecticut, and Massachusetts.

Table 3. Cotton System Spinning Spindles in Place by Type of Mill: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of mill	June 30, 1983		June 30, 1978	
	Ring spindles (number)	Ringless spindles (producing positions)	Ring spindles (number)	Ringless spindles (producing positions)
All industries	14 760 961	316 196	17 182 204	153 776
Weaving mills, cotton (Industry 2211)	4 109 251	119 602	4 712 214	49 262
Weaving mills, manmade fiber and silk (Industry 2221)	5 383 122	45 506	8 204 232	21 712
Yarn mills, except wool (Industry 2281)	4 793 730	119 454	5 344 030	72 012
All other mills	474 858	31 634	921 728	10 792

Table 4. Woolen and Worsted System Machinery in Place, Including Midfiber: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of machinery	June 30, 1983	June 30, 1978	Type of machinery	June 30, 1983	June 30, 1978
Woolen and worsted spindles	758 607	938 824	Doubling and twisting spindles	130 453	(NA)
For carpet	193 189	222 901	Ring spindles	100 159	(NA)
Woolen system spindles	(D)	(D)	4 inches or less	33 275	(NA)
Worsted system spindles	77 504	96 932	More than 4 inches	66 884	(NA)
American (modified) system spindles	87 936	74 328			
Other spinning system spindles	(D)	(D)	Two-for-one twisting spindles	30 294	(NA)
For weaving, including craft	342 707	365 568	Throwing spindles	23 742	(NA)
Woolen system spindles	117 993	187 589			
Worsted system spindles	182 928	156 983	Winders and spoolers	37 582	(NA)
American (modified) system spindles	39 580	24 899	Automatic	18 365	(NA)
Midfiber system spindles	(D)	14 297	Manual	19 197	(NA)
Other spinning system spindles	(D)				
For knitting, including craft and hand knitting	(D)	329 484	Woolen and worsted cards	1 371	1 736
Woolen system spindles	54 484	30 992	60 inches or less	886	1 233
Worsted system spindles	128 704	233 074	More than 60 inches	485	503
American (modified) system spindles	34 819	53 268			
Midfiber system spindles	(D)	12 130	Worsted combs	382	819
Other spinning system spindles	(D)				
For other uses	(D)	20 891	Machines for converting manmade fiber tow to top or sliver ..	370	590

Table 5. Woolen and Worsted System Spindles, Including Midfiber, By Type and Geographic Area: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Geographic area	June 30, 1983			June 30, 1978		
	Woolen system	Worsted system	American (modified) system	Woolen system	Worsted system	American (modified) system
United States	(D)	389 136	162 135	(D)	488 989	152 295
Alabama	-	(D)	(D)	(D)	9 898	(D)
Georgia	(D)	49 804	58 744	35 982	81 458	48 578
Maine	33 002	(D)	(D)	38 170	8 096	(D)
Massachusetts	17 652	(D)	(D)	31 418	(D)	(D)
New Hampshire	14 784	22 858	-	15 060	(D)	-
New York	8 720	(D)	(D)	10 730	(D)	-
North Carolina	32 271	197 812	49 480	43 460	261 132	21 088
Pennsylvania	7 078	(D)	(D)	8 632	(D)	5 344
Rhode Island	(D)	22 858	-	(D)	-	(D)
South Carolina	(D)	73 812	10 824	4 944	101 766	29 860
Tennessee	7 328	-	-	8 400	-	-

Note: Detail may not add to total due to region, division, and State statistics which have been withheld to avoid disclosing data for individual companies.

Table 6. Machinery in Place for Filament Yarn Preparation: June 30, 1983 and June 30, 1978

[Excludes carpet yarn preparation machinery. Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of machinery	June 30, 1983	June 30, 1978
TEXTURED YARN MACHINERY		
False twist:		
Single heater spindles..	177 790	197 433
Pin spindle do..	80 812	148 230
Friction spindle do..	78 354	51 203
Belt spindle do..	38 624	(NA)
Double heater do..	150 543	280 890
Pin spindle do..	80 046	183 004
Friction spindle do..	83 126	97 888
Belt spindle do..	7 371	(NA)
Air jet..... producing		
positions..	44 519	81 407
Free standing, nonintegrated units do..	8 858	12 663
Integrated with other texturing machines do..	37 661	48 744
Two-for-one twisting spindles do..	13 400	(NA)
Stuffer box do..	855	2 606
Knit-deknit do..	1 712	8 029
Edge crimping do..	(D)	(D)
Gear crimping do..	(D)	2 688
Precision winders do..	23 310	(NA)
FLAT FILAMENT YARN PREPARATION MACHINERY		
Two-for-one twisting spindles do..	31 608	(NA)
Direct cable twisters do..	4 482	(NA)

Table 7. Warp Preparation Equipment in Place: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of equipment	June 30, 1983	June 30, 1978
Warping and beaming equipment.....	2 782	2 781
Spindle driven.....	1 098	1 029
Drum driven.....	1 664	1 755
Slashing and sizing equipment.....	872	1 003
Drawing-in machines.....	324	358

Table 8. Broad Fabric Weaving Looms in Place by Type and Width of Loom: June 30, 1983

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Width of loom ¹	Shuttle type weaving looms				
	Total	Single shuttle (cam and dobby)	Multiple shuttle-box or head motion looms	Jacquard	Double shuttle pile and plush
Shuttle type looms	147 392	129 480	11 337	4 535	2 040
40 inches or less	12 891	10 838	887	(D)	(D)
41 to 50 inches	59 848	55 839	2 257	1 004	748
51 to 80 inches	27 113	21 038	4 878	831	788
81 to 90 inches	24 839	23 225	777	801	238
91 to 100 inches	3 806	2 287	940	528	51
101 to 130 inches	11 179	10 520	389	(D)	(D)
131 inches or more	3 534	2 582	887	(D)	(D)
	(D)	2 383	473	(D)	-
	(D)	788	271	(D)	-
Width of loom ¹	Shuttleless type weaving looms				
	Total	Single filling insertion	Multifilling insertion		Pile and plush
			2 colors	More than 2 colors	
Shuttleless type looms	53 798	34 920	6 022	11 223	1 633
Water jet	5 420	4 872	(D)	38	(D)
50 inches or less	(D)	(D)	-	-	-
51 to 80 inches	(D)	537	-	(D)	-
81 to 90 inches	(D)	(D)	-	-	-
91 to 100 inches	(D)	1 372	(D)	-	-
101 to 130 inches	2 498	2 025	(D)	(D)	(D)
131 inches or more	-	-	-	-	-
91 to 100 inches	-	-	-	-	-
101 to 130 inches	-	-	-	-	-
131 inches or more	(D)	(D)	-	-	-
Air jet	7 151	(D)	839	(D)	-
50 inches or less	1 152	1 152	-	-	-
51 to 80 inches	(D)	(D)	-	(D)	-
81 to 90 inches	2 803	2 235	(D)	(D)	-
91 to 100 inches	2 257	1 788	(D)	(D)	-
101 to 130 inches	(D)	(D)	-	-	-
131 inches or more	(D)	-	-	(D)	-
Rapier	22 802	12 482	2 236	8 968	1 136
50 inches or less	2 959	2 645	-	(D)	(D)
51 to 80 inches	5 873	3 783	828	984	476
81 to 90 inches	5 204	2 942	493	1 614	155
91 to 100 inches	4 396	899	802	2 631	64
101 to 130 inches	2 848	1 720	67	1 061	-
131 inches or more	(D)	(D)	77	(D)	(D)
91 to 100 inches	(D)	(D)	(D)	413	(D)
101 to 130 inches	206	(D)	(D)	107	(D)
131 inches or more	17 427	(D)	2 457	3 464	(D)
Projectile	412	(D)	(D)	264	-
50 inches or less	(D)	960	(D)	1 852	-
51 to 80 inches	(D)	6 277	1 092	534	(D)
81 to 90 inches	(D)	4 039	1 338	794	(D)
91 to 100 inches	998	87	(D)	(D)	(D)
101 to 130 inches	(D)	(D)	-	-	-
131 inches or more	(D)	-	-	(D)	-
50 inches or less	(D)	(D)	-	-	-
51 to 80 inches	(D)	-	-	(D)	-
81 to 90 inches	(D)	(D)	-	-	(D)
91 to 100 inches	(D)	-	-	(D)	(D)
101 to 130 inches	-	-	-	-	-
131 inches or more	(D)	-	-	(D)	-

Note: Data for broad fabric weaving looms in place are collected on a quarterly basis and published in Current Industrial Reports, series MQ-22T, Broadwoven Fabrics (Gray).

¹Maximum width that can be woven (width at take-off point), not finished width of fabric.

Table 9. Broad Fabric Weaving Looms in Place by Type and Width of Loom: June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Width of loom ¹	Shuttle type weaving looms				
	Total	Single shuttle (cam and dobby)	Multiple shuttle-box or head motion looms	Jacquard	Double shuttle pile and plush
Shuttle type looms	261 904	233 879	16 753	6 722	4 550
40 inches or less	15 613	12 321	1 181	1 275	838
41 to 50 inches	121 590	117 117	2 258	845	1 370
51 to 60 inches	53 900	44 275	8 568	1 780	1 277
61 to 70 inches	31 663	28 904	1 193	970	596
71 to 80 inches	6 673	8 723	1 074	741	135
81 to 90 inches	19 258	16 997	1 796	(D)	(D)
91 to 100 inches	4 455	2 976	978	(D)	(D)
101 to 130 inches	4 954	3 550	1 142	(D)	(D)
131 inches or more	1 800	1 018	563	(D)	(D)

Width of loom ¹	Shuttleless type weaving looms			
	Total	Single filling insertion	Multifilling insertion	Pile and plush
Shuttleless type looms	34 217	22 711	10 310	1 196
Jet, including water and air	8 106	5 634	272	(X)
Less than 50 inches	509	509	-	(X)
50 to 63 inches	3 093	(D)	(D)	(X)
64 inches or more	2 504	(D)	(D)	(X)
Other, including rapier and projectile	26 111	18 877	10 038	1 196
50 inches or less	2 790	2 489	(D)	(D)
51 to 80 inches	4 838	3 020	1 872	146
61 to 70 inches	3 658	2 754	874	428
71 to 80 inches	3 033	(D)	2 322	(D)
81 to 90 inches	5 591	(D)	3 335	(D)
91 to 100 inches	64	(D)	(D)	-
101 to 130 inches	5 450	4 003	(D)	(D)
131 inches or more	2 489	1 858	631	-

Note: Data for broad fabric weaving looms in place are collected on a quarterly basis and published in Current Industrial Reports, series MQ-22T, Broadwoven Fabrics (Gray).

¹Maximum width that can be woven (width at take-off point), not finished width of fabric.

Table 10. Broad Fabric Weaving Looms by Geographic Area: June 30, 1983

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Geographic area	Shuttle type weaving looms					Shuttleless type weaving looms					
	Total	Single shuttle (cam and dobby)	Multiple shuttle-box or head motion looms	Jacquard	Double shuttle pile and plush	Total	Water jet	Air jet	Rapier	Projectile	Other
United States	147 392	129 480	11 337	4 535	2 040	53 798	5 420	7 151	22 802	17 427	998
Alabama	9 843	8 969	(D)	(D)	(D)	2 469	-	(D)	1 217	1 229	(D)
California	(D)	(D)	(D)	-	(D)	(D)	(D)	-	(D)	(D)	(D)
Georgia	19 364	17 418	(D)	321	(D)	8 212	(D)	(D)	(D)	3 434	-
Maine	1 188	(D)	587	(D)	-	(D)	-	-	(D)	(D)	-
Massachusetts	2 033	1 804	229	-	-	649	-	-	(D)	(D)	-
New Hampshire	(D)	-	73	(D)	(D)	(D)	-	-	(D)	(D)	-
New Jersey	831	(D)	289	246	(D)	(D)	(D)	-	(D)	(D)	-
New York	1 939	1 706	177	(D)	(D)	(D)	-	-	(D)	(D)	-
North Carolina	24 808	19 407	2 794	2 329	278	15 747	(D)	2 290	6 606	5 670	(D)
Pennsylvania	2 871	1 706	480	820	65	1 212	-	-	998	(D)	(D)
Rhode Island	582	(D)	142	(D)	(D)	(D)	(D)	-	(D)	(D)	-
South Carolina	65 331	63 317	(D)	(D)	1 241	17 382	2 746	2 870	7 171	4 595	-
Tennessee	3 943	(D)	(D)	-	-	1 420	381	-	681	378	-

Note: Detail may not add to total due to region, division, and State statistics which have been withheld to avoid disclosing data for individual companies.

Table 11. Broad Fabric Weaving Looms by Geographic Area: June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Geographic area	Shuttle type weaving looms					Shuttleless type weaving looms		
	Total	Single shuttle (cam and dobby)	Multiple shuttle-box or head motion looms	Jacquard	Double shuttle pile and plush	Total	Jet, including water and air	Other, including rapier and projectile
United States	261 904	233 679	16 753	6 722	4 550	34 217	6 106	28 111
Alabama	19 166	4 114	(D)	-	-	(D)	-	(D)
California	(D)	(D)	(D)	-	-	(D)	(D)	(D)
Georgia	33 563	31 232	1 466	366	499	3 538	236	3 298
Maine	(D)	971	556	(D)	-	31	-	31
Massachusetts	3 726	3 178	550	-	-	149	(D)	(D)
New Hampshire	456	456	-	-	-	1 014	(D)	(D)
New Jersey	588	-	(D)	257	(D)	(D)	-	(D)
New York	1 106	(D)	(D)	(D)	-	(D)	-	(D)
North Carolina	55 069	43 842	5 701	3 536	1 890	10 048	1 017	9 031
Pennsylvania	2 898	(D)	1 016	501	(D)	970	(D)	(D)
Rhode Island	(D)	1 473	150	-	(D)	511	(D)	(D)
South Carolina	116 096	112 829	2 199	350	920	9 855	2 131	7 724
Tennessee	(D)	17 987	(D)	(D)	(D)	(D)	-	(D)

Note: Detail may not add to total due to region, division, and State statistics which have been withheld to avoid disclosing data for individual companies.

Table 12. Broad Fabric Weaving Looms by Type of Looms and Type of Mill: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of loom	June 30, 1983					June 30, 1976				
	Weaving mills, cotton (SIC 2211)	Weaving mills, manmade fiber and silk (SIC 2221)	Weaving and finishing mills, wool (SIC 2231)	Tire cord and fabric (SIC 2296)	All other mills	Weaving mills, cotton (SIC 2211)	Weaving mills, manmade fiber and silk (SIC 2221)	Weaving and finishing mills, wool (SIC 2231)	Tire cord and fabric (SIC 2296)	All other mills
Broad fabric weaving looms	68 547	121 693	2 523	1 062	7 165	101 036	162 741	2 234	2 666	7 444
Shuttle	53 193	67 563	1 049	1 062	4 506	92 263	159 866	1 579	(D)	(D)
Single shuttle	47 006	78 117	138	1 062	3 160	83 042	143 951	210	2 379	4 297
Multiple shuttle	3 732	8 230	901	-	474	4 260	10 753	1 355	-	385
Jacquard	1 937	1 885	(D)	-	(D)	3 710	2 257	(D)	-	(D)
Double shuttle	518	1 351	(D)	-	(D)	1 251	2 905	(D)	(D)	(D)
Shuttleless	15 354	34 310	1 474	-	2 659	6 773	22 875	855	(D)	(D)
Water jet	(D)	4 385	-	-	(D)	-	-	-	-	-
Air jet	2 025	4 393	-	-	733	7 841	18 099	655	(D)	(D)
Rapier	7 910	13 581	509	-	821	-	-	-	-	-
Projectile	4 915	11 348	965	-	199	932	4 776	-	-	398
Other	(D)	623	-	-	(D)	-	-	-	-	-

Table 13. Narrow Fabric Weaving by Type of Loom: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of loom	June 30, 1983			June 30, 1978		
	Total	Shuttle type	Shuttleless type	Total	Shuttle type	Shuttleless type
Narrow fabric weaving looms	9 288	2 622	6 666	8 800	3 801	4 999
Tape looms	5 709	1 466	4 241	5 785	2 777	3 008
Webbing looms	3 579	1 154	2 425	3 015	1 024	1 991
Lightweight and/or medium weight	2 842	743	2 099	2 531	737	1 794
Heavyweight	549	(D)	(D)	328	(D)	(D)
Extra weight	188	(D)	(D)	156	(D)	(D)

Note: Data for narrow fabric looms in place are collected on an annual basis and published in Current Industrial Reports, series MA-22G, Narrow Fabrics.

Table 14. Knitting Machinery in Place: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of machinery	June 30, 1983	June 30, 1978	Type of machinery	June 30, 1983	June 30, 1978
Warp knitting machines:			Warp knitting machines—Con.		
Tricot	2 965	4 431	Yard goods, outerwear, underwear, and industrial—Con.		
Compound needle	1 008	(NA)	Circular open top latch needle machines—Con.		
Spring beard	1 977	(NA)			
Compound raschel	659	2 248	Patterned jersey:		
Latch raschel	2 142		64 feed or less	1 599	2 012
Raschel-crochet	379		85 to 96 feed	116	140
		267	More than 96 feed	53	86
Warp insertion machines	148	816	Silver knit	617	512
All other, including ketten raschel, simplex, milanese, and loop vending	255				
			Circular spring needle machines:		
Warp knitting machines:			Fleece	4 123	
Garments, trims and collars:			8 to 8 cut	462	
Flat bar	4 916	6 232	10 to 30 inch cylinder	372	
V-bed flat latch needle	3 612	4 333	More than 30 inch cylinder	90	
Flat-bed puri, or links and links	885	1 104			
Multisection spring needle full fashioning	421	795	9 to 14 cut	2 676	
			10 to 30 inch cylinder	2 661	
Cylinder and dial	2 109	3 293	More than 30 inch cylinder	215	2 423
Circular lengths	2 608	2 701			
Rib	2 219	1 925	15 cut and finer	785	
Interlock	389	778	10 to 30 inch cylinder	716	
			More than 30 inch cylinder	69	
Circular headwear and other small diameter machines, excluding hosiery and knit-deknit	1 009	1 518	Other	873	
Yard goods, outerwear, underwear, and industrial:			Cylinder and dial machines:		
Circular open top latch needle machines:			Interlock	2 336	3 692
Plain:			By cut:		
64 feed or less	4 414	5 943	16 or less	1 082	1 826
85 to 96 feed	862	731	22 to 24	629	1 265
More than 96 feed	266	100	28 or more	425	601
Multiple track	1 299		By feed:		
Fleece	707		64 feed or less	1 885	3 161
Two-end	527		85 to 96 feed	290	482
12 to 17 cut	129		More than 96 feed	161	49
10 to 30 inch cylinder	(D)				
More than 30 inch cylinder	(D)		Rib body size underwear machines	3 278	4 262
			Double knit, including eight lock	3 377	6 266
18 cut and finer	398		By type:		
10 to 30 inch cylinder	(D)		No pattern mechanism	650	1 670
More than 30 inch cylinder	(D)		Fixed selection, including patterns limited to one machine revolution	355	2 146
			Patterning device, mechanical and electronic (more than one machine revolution)	2 372	4 250
Three-end	180	1 374	By cut:		
12 to 17 cut	130		16 or less	1 991	5 064
10 to 30 inch cylinder	(D)		22 to 24	1 172	2 499
More than 30 inch cylinder	(D)		28 or more	214	703
			By feed:		
18 cut and finer	50		64 feed or less	3 051	7 450
10 to 30 inch cylinder	50		85 to 96 feed	326	766
More than 30 inch cylinder	-		More than 96 feed	-	50
Other	592		Puri or links and links	402	261
64 feed or less	277				
85 to 96 feed	239				
More than 96 feed	76				

Table 15. Textile Finishing Machinery in Place: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see Introductory text]

Type of machinery	June 30, 1983	June 30, 1978	Type of machinery	June 30, 1983	June 30, 1978
Scouring and bleaching ranges -----	670	899	Printing machinery—Con.		
Rope -----	219	348	Screen printing machines -----	454	354
Open width -----	281	305	Flat screen, flat bed machines -----	183	153
Other -----	190	246	For carpet -----	48	13
Mercerizing ranges -----	69	69	For other than carpet -----	115	140
Dyeing machinery:			Rotary screen, flat bed machines -----	193	167
Raw stock and bale dyeing machines ¹ -----	231	344	Less than 60 inches -----	26	25
Yarn dyeing machines -----	2 471	2 413	60 to 69 inches -----	123	98
Package yarn ¹ -----	1 283	1 070	90 to 119 inches -----	33	27
Beam -----	395	582	120 inches or more -----	11	17
Continuous -----	82	102	Other screen printing machines -----	98	34
Skein -----	623	520	Continuous piece goods heat transfer printing machines -----	60	43
Other -----	98	139	Other printing equipment -----	178	71
Batch fabric dyeing machines -----	5 789	5 829	Compressive shrinkage machines -----	276	386
Jigs -----	1 080	1 126	For woven fabrics -----	223	264
Padders -----	283	322	For knit fabrics -----	55	122
Becks (boxes, winches, dye kettles, etc.):			Tenter frames -----	1 316	1 391
Atmospheric type -----	1 962	2 240	Clip -----	616	654
Pressure type -----	499	314	Pin -----	658	693
Jet -----	1 349	1 079	Pin-clip combination -----	42	44
Beam -----	445	359	Solvent processing units (batch and continuous) -----	79	117
Other -----	171	167	Decating -----	159	156
Carpet dyeing machines -----	588	885	Fulling mills -----	244	228
Beck -----	526	655	Surface finishing machinery -----	2 525	2 633
Continuous -----	40	30	Napping -----	885	887
Garment dyeing machines -----	1 036	1 123	Shearing -----	631	540
Rotary -----	479	582	Brushing, sueding, and sanding -----	259	411
Paddle -----	557	561	Embossing -----	86	69
Continuous dyeing ranges -----	288	264	Calendaring -----	664	726
Thermosol-pad-steam -----	144	115	Corduroy and velveteen cutting machines -----	338	451
Other continuous -----	144	149			
Printing machinery:					
Roller printing machines -----	209	259			
Less than 70 inches -----	185	239			
70 inches or more -----	24	20			

¹Number of keirs or kettles.

Table 16. Textile Finishing Machinery by Type of Mill: June 30, 1983

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of machinery	Total number in place	Number of machines primarily processing—			
		Weaving mills, cotton (SIC 2211)	Weaving mills, manmade fiber and silk (SIC 2221)	Knitting mills (SIC 225)	Other industries
Scouring and bleaching ranges -----	870	105	189	173	203
Rope -----	219	32	40	64	63
Open width -----	261	39	119	44	59
Other -----	190	34	30	85	87
Mercerizing ranges -----	89	(D)	(D)	-	85
Dyeing machinery:					
Raw stock and bale dyeing machines -----	231	21	48	-	182
Yarn dyeing machines -----	2 471	342	374	190	1 585
Package yarn ¹ -----	1 263	99	184	117	863
Beam -----	395	207	137	-	51
Continuous -----	92	(D)	(D)	(D)	39
Skein -----	823	(D)	23	40	549
Other -----	98	(D)	(D)	(D)	63
Batch fabric dyeing machines -----	5 789	684	1 638	2 022	1 425
Jigs -----	1 080	223	650	47	160
Padders -----	263	(D)	(D)	52	82
Becks (boxes, winches, dye kettles, etc.):					
Atmospheric type -----	1 962	83	238	896	747
Pressure type -----	499	240	93	87	79
Jet -----	1 349	49	363	721	218
Beam -----	445	43	193	134	75
Other -----	171	(D)	(D)	85	66
Carpet dyeing machines -----	568	(D)	-	(D)	542
Beck -----	528	(D)	-	(D)	505
Continuous -----	40	(D)	-	(D)	37
Garment dyeing machines -----	1 038	(D)	(D)	974	53
Rotary -----	479	(D)	(D)	454	18
Paddle -----	557	-	-	520	37
Continuous dyeing ranges -----	288	50	82	22	134
Thermosol-pad-steam -----	144	28	58	8	54
Other continuous -----	144	22	26	18	60
Printing machinery:					
Roller printing machines -----	209	(D)	72	(D)	40
Less than 70 inches -----	185	58	82	37	28
70 inches or more -----	24	(D)	10	(D)	12
Screen printing machines -----	454	100	177	57	120
Flat screen, flat bed machines -----	183	24	81	20	58
For carpet -----	48	-	(D)	(D)	13
For other than carpet -----	115	24	(D)	(D)	45
Rotary screen, flat bed machines -----	193	38	92	21	42
Less than 60 inches -----	26	(D)	17	(D)	(D)
60 to 89 inches -----	123	26	81	17	19
90 to 119 inches -----	33	7	(D)	(D)	13
120 inches or more -----	11	(D)	(D)	-	(D)
Other screen printing machines -----	98	38	24	16	20
Continuous piece goods heat transfer printing machines -----	60	9	17	11	23
Other printing machinery -----	178	70	39	37	30
Compressive shrinkage machines -----	278	44	(D)	(D)	125
For woven fabrics -----	223	44	(D)	(D)	(D)
For knit fabrics -----	55	-	(D)	(D)	(D)
Tenter frames -----	1 318	177	435	220	486
Clip -----	818	(D)	302	(D)	152
Pin -----	658	28	119	195	316
Pin-clip combination -----	42	(D)	14	(D)	18
Solvent processing units (batch and continuous) -----	79	8	9	12	50
Decating -----	159	7	33	36	83
Fulling mills -----	244	(D)	(D)	(D)	212
Surface finishing machinery -----	2 525	301	404	680	1 140
Napping -----	885	135	67	228	455
Shearing -----	631	28	43	209	351
Brushing, sueding, and sanding -----	259	24	32	(D)	(D)
Embossing -----	86	18	45	(D)	(D)
Calendering -----	664	98	217	242	107
Corduroy and velveteen cutting machines -----	338	328	-	(D)	(D)

¹Number of keirs or kettles.

Table 17. Textile Finishing Machinery by Type of Mill: June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of machinery	Total number in place	Number of machines primarily processing—			
		Weaving mills, cotton (SIC 2211)	Weaving mills, manmade fiber and silk (SIC 2221)	Knitting mills (SIC 225)	Other Industries
Scouring and bleaching ranges -----	699	203	320	214	162
Rope -----	348	76	74	92	106
Open width -----	305	63	161	58	23
Other -----	246	64	85	64	33
Mercerizing ranges -----	89	27	35	(D)	(D)
Dyeing machinery:					
Raw stock and bale dyeing machines -----	344	40	37	44	223
Yarn dyeing machines -----	2 413	465	501	130	1 317
Package yarn -----	1 070	163	153	93	641
Beam -----	582	211	304	(D)	(D)
Continuous -----	102	40	(D)	(D)	58
Skein -----	520	(D)	35	(D)	463
Other -----	139	(D)	(D)	30	(D)
Batch fabric dyeing machines -----	5 829	514	2 250	2 281	584
Jigs -----	1 128	236	731	101	58
Padders -----	322	58	104	125	35
Becks (boxes, winches, dye kettles, etc.):					
Atmospheric type -----	2 240	143	684	1 114	299
Pressure type -----	314	7	154	109	44
Jet -----	1 079	34	418	586	41
Beam -----	359	(D)	126	180	(D)
Other -----	167	(D)	33	66	(D)
Carpet dyeing machines -----	685	-	(D)	(D)	857
Beck -----	655	-	(D)	(D)	627
Continuous -----	30	-	-	-	30
Garment dyeing machines -----	1 123	(D)	(D)	1 054	36
Rotary -----	582	-	(D)	542	(D)
Paddle -----	581	(D)	(D)	512	(D)
Continuous dyeing ranges -----	264	76	123	11	54
Thermosol-pad-steam -----	115	35	58	(D)	(D)
Other continuous -----	149	41	67	(D)	(D)
Printing machinery:					
Roller printing machines -----	259	(D)	103	(D)	23
Less than 70 inches -----	239	(D)	92	(D)	17
70 inches or more -----	20	(D)	11	(D)	8
Screen printing machines -----	354	(D)	142	49	(D)
Flat screen, flat bed machines -----	153	36	54	18	45
For carpet -----	13	-	-	-	13
For other than carpet -----	140	36	54	18	32
Rotary screen, flat bed machines -----	187	64	72	23	8
Less than 60 inches -----	25	13	8	(D)	(D)
60 to 89 inches -----	98	36	41	19	-
90 to 119 inches -----	27	(D)	17	(D)	-
120 inches or more -----	17	(D)	8	(D)	(D)
Other screen printing machines -----	34	(D)	18	6	(D)
Continuous piece goods heat transfer printing machines -----	43	(D)	10	21	(D)
Other printing machinery -----	71	6	19	25	21
Compressive shrinkage machines -----	386	120	115	107	44
For woven fabrics -----	264	(D)	106	7	(D)
For knit fabrics -----	122	(D)	9	100	(D)
Tenter frames -----	1 391	290	824	265	192
Clip -----	654	247	351	33	23
Pin -----	693	29	257	238	169
Pin-clip combination -----	44	14	18	14	-
Solvent processing units (batch and continuous) -----	117	14	19	54	30
Decating -----	158	(D)	43	52	(D)
Fulling mills -----	228	-	26	41	181
Surface finishing machinery -----	2 633	484	676	843	630
Napping -----	867	225	165	286	171
Shearing -----	540	51	158	146	185
Brushing, sueding, and sanding -----	411	61	77	99	174
Embossing -----	89	26	41	13	9
Calendaring -----	726	121	215	299	91
Corduroy and velveteen cutting machines -----	451	362	78	(D)	(D)

Table 18. Other Fabric Forming Machinery in Place: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of machinery	June 30, 1983	June 30, 1978
Fine gauge tufting (non-carpet end uses).....	75	70
Nonwoven fabric forming machinery:		
Needle loom.....	500	794
Web forming.....	344	241
Sitch bonding.....	121	(D)
Other.....	518	342

Table 19. Circular Hosiery Machinery in Place: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of machinery	June 30, 1983	June 30, 1978
Ladies' hosiery machines.....	20 158	22 905
1 feed.....	1 587	965
2 feed.....	4 607	8 983
3 and 4 feed.....	12 338	11 340
6 to 8 feed.....	1 818	3 817
Men's and boys' sock machines.....	33 092	26 075
Single cylinder.....	24 325	18 171
1 feed.....	20 509	16 078
2 feed.....	2 418	1 562
3 and 4 feed.....	1 400	531
Double cylinder.....	8 767	7 904
1 feed.....	281	413
2 feed.....	7 962	8 972
3 and 4 feed.....	524	519
Women's, misses', children's, and infants' sock machines.....	13 894	9 463
Single cylinder.....	11 697	8 109
1 feed.....	8 794	5 209
2 feed.....	2 480	579
3 and 4 feed.....	423	321
Double cylinder.....	1 997	3 354

Table 20. Circular Hosiery Machinery in Place by Type of Machine and Geographic Area: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Geographic area	Total		Ladies' hosiery machines		Men's and boys' sock machines		Women's, misses', children's, and infants' sock machines	
	June 30, 1983	June 30, 1978	June 30, 1983	June 30, 1978	June 30, 1983	June 30, 1978	June 30, 1983	June 30, 1978
United States.....	66 944	58 443	20 158	22 905	33 092	26 075	13 694	9 463
Alabama.....	3 562	6 937	(D)	1 794	2 426	2 515	(D)	2 628
Connecticut.....	-	75	-	(D)	-	(D)	-	-
Massachusetts.....	-	185	-	-	-	(D)	-	(D)
North Carolina.....	44 251	35 862	13 177	13 292	21 968	16 717	9 106	5 853
Pennsylvania.....	3 364	1 585	(D)	40	1 915	1 555	(D)	-
South Carolina.....	1 648	3 140	(D)	(D)	(D)	(D)	(D)	(D)
Tennessee.....	5 923	1 870	952	-	2 208	1 407	2 763	263
Virginia.....	1 246	1 638	(D)	1 019	(D)	(D)	-	(D)

Note: Detail may not add to total due to region, division, and State statistics which have been withheld to avoid disclosing data for individual companies.

Table 21. Carpet and Rug Weaving Looms and Machinery in Place: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of machinery	June 30, 1983	June 30, 1978
Weaving looms ¹	830	719
27 inches	89	64
3 feet to less than 9 feet	204	283
9 feet	35	61
9 1/2 feet to 12 feet	393	250
15 feet or more	109	81
Tufting machines ¹	1 943	2 452
81 inches or less	395	463
9 feet	73	41
12 feet	775	609
15 feet	642	1 283
More than 15 feet	58	56
Fusion bonding machines ¹	44	37
Less than 12 feet	27	13
12 feet or more	17	24
Custom carpet (multipass) tufting machines	218	381
Carpet braiding machines	848	909
Carpet knitting machines	82	40
Carpet and rug needle punch looms	228	82

¹Size is maximum width which can be woven, tufted, or bonded, not finished width of carpet or rug.

Table 22. Carpet Yarn Heatsetting Machinery in Place: June 30, 1983 and June 30, 1978

[Data are aggregates of reported data from companies representing approximately 90 percent of total employment in industries covered by survey. For meaning of abbreviations and symbols, see introductory text]

Type of machinery	June 30, 1983	June 30, 1978
Filament carpet yarn:		
Twisting ¹	70 538	96 678
Direct cable	58 956	
Other	11 582	
Heatsetting:		
Autoclaves	83	134
Continuous units	521	63
Spun carpet yarn:		
Twisting ¹	85 640	91 134
Direct cable	7 136	
Other	78 504	
Heatsetting:		
Autoclaves	104	170
Continuous units	508	30

¹Number of spindles.

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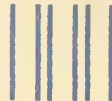
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